

## Patent Claims

1. An apparatus (8) for adjustment of the impedance of a high-voltage line (9) which carries an alternating current and comprises a plurality of phases, having at least one control coil (2) which can be inserted into the high-voltage line (9) connected in series, and having at least one switching device (3) which is in each case associated with one control coil (2), with a control unit (4) being provided in order to control each switching device (3) in such a manner that the effective reactance of the control coil (2) in the apparatus (8) can be adjusted by the switching of the switching device (3), characterized in that each switching device (3) is arranged in a parallel path (5) in parallel with the control coil (2) associated with it.
2. The apparatus (8) as claimed in claim 1, characterized in that at least one switching device (3) comprises thyristors (10) connected in opposite senses.
3. The apparatus (8) as claimed in claim 1 or 2, characterized in that the control unit (4) has a zero-crossing unit (12), which is connected to current sensors (14), in order to verify a zero crossing of the alternating current, and has at least one trigger unit (13, 13a, 13b) which is connected to a trigger angle transmitter (19).
4. The apparatus (8) as claimed in claim 3, characterized in that

the trigger angle transmitter (19) is connected to a current sensor (14) in order to measure the alternating current, and is connected to a voltage sensor (22) in order to measure the voltage on the high-voltage line (9) with respect to the ground potential or with respect to the voltages between the phases, with the control unit (4) having a read only memory element which is provided for storage of control parameters, with at least one matching unit (25, 26, 33) being provided in order to detect discrepancies between the control parameters and the measured values from the current sensor (14) and/or the voltage sensor (22), or between the control parameters and measurement variables which are calculated from the measured values from the current sensor and/or voltage sensor.

5. The apparatus (8) as claimed in one of the preceding claims,  
characterized in that  
two control coils (2) are provided, which are arranged in series and each have a switching device (3), which is arranged in the associated parallel path (5), connected in parallel with it.
6. The apparatus (8) as claimed in claim 5,  
characterized in that  
the control unit (4) has two trigger units (13a, 13b), which interact with a respective switching device (3a, 3b).
7. The apparatus (8) as claimed in claim 5 or 6,  
characterized in that  
one of the switching devices (3b) has thyristors which are connected in opposite senses, with the other switching device (3a) being a mechanical switch.

8. The apparatus (8) as claimed in one of the preceding claims,  
characterized by  
a capacitor (40) which is connected in series with the control coil (2) and can be bridged by means of a capacitor switching unit (42) which is arranged in parallel with the capacitor (40) in a capacitor parallel path (41).
9. Apparatus (8) according to claim 8,  
characterized in that  
a coil is provided in the capacitor parallel path (41).
10. The apparatus (8) as claimed in one of claims 8 or 9,  
characterized by  
a filter unit (45), which is arranged in parallel with a series path in which the control coil (2) and the capacitor (40) are connected in series.
11. A method for adjustment of the impedance of a high-voltage line which carries alternating current, in which the control coil (2) is bridged as a function of the phase of the alternating current by triggering a switching device (3, 3a, 3b) which is arranged in a parallel path (5) in parallel with a control coil (2) which can be inserted in series into the high-voltage line, with the impedance of the high-voltage line being adjusted in this way.
12. A control unit (4) for adjustment of the impedance of a high-voltage line (9) which carries alternating current, having a zero-crossing sensor (12) for production of a zero-crossing signal (16) on verification of a zero crossing of the alternating current, and having at least one trigger unit (13, 13a, 13b), which is connected to a phase measurement device and to a

trigger angle transmitter (19) for production of a trigger angle for the trigger unit, and which produces a trigger signal after a delay time corresponding to the trigger signal, on receiving a zero-crossing signal, which trigger signal is used to control the impedance of the high-voltage line (9) by using a switching device (3) to bridge a control coil (2), which is inserted in series into the high-voltage line (9).